

Sudan Agromet Dekadal Bulletin

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Highlights

- The ITCZ continued its northwards progress and now reaching near 17°N, ahead of average
- Southern Sudan (Jonglei, Unity and Warab states) registered low rainfall for the second successive dekad. Eastern Sudan (Gedaref and Kassala) registered large rainfalls.
- The rainfall totals this season, relative to the long term average, deteriorated from last dekad in many parts of the country.
- In East Equatoria, Jonglei and Upper Nile, vegetation conditions are markedly below average. reflecting the below normal rainfall conditions in this region
- In Greater Darfur and West Kordofan current evidence from the vegetation index and rainfall estimates indicates delays in the start of the growing season due to poor rains.

Rainfall Analysis – Seasonal Progress

Rainfall in Sudan and its seasonal distribution is mostly the result of the northwards movement of moist air masses, source of the rainfall. The Intertropical Convergence Zone (ITCZ) marks the northernmost extent of these humid air masses, where they meet with drier and warmer air. The rains follow some distance south of this border between air masses, so that tracking this ITCZ through the season provides a quick evaluation of the seasonal movement of the rains

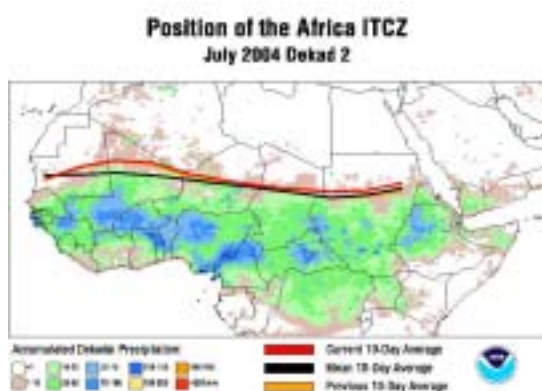


Fig 1a – Position of ITCZ over Africa in July Dek 2 2004 (red) compared to previous dekad (orange) and average position (black). Background is a rainfall map (Source : CPC-FEWS Net)

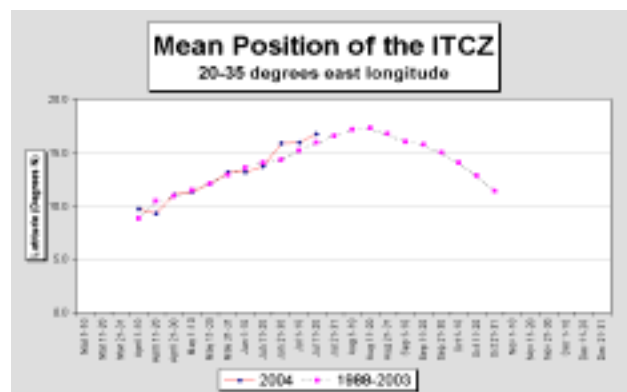


Fig 1b – Current latitude of the ITCZ position compared to the 15 year average. (Source : CPC-FEWS Net)

Note (fig 1a) how the ITCZ position marks the border between the (significantly) rainy and non-rainy rainfall areas. The way this position changes along the season can be described by the time series of its mean latitude (fig 1b). We can see :

- The ITCZ had been progressing northwards in line with the 15 year average until mid June.

- However, for the past three dekads, the ITCZ made significant advances northwards (see map and plot in Fig 1). The current position is close to 17°N, north of the average.

Rainfall Analysis - Dekadal Amounts and Frequency

10 day rainfall amounts produced by SAMIS at SMA/SEWS are based on a combination of METEOSAT satellite and synoptic gauge data. Rainfall climatology is similarly derived from a combination of historical data from the two sources.

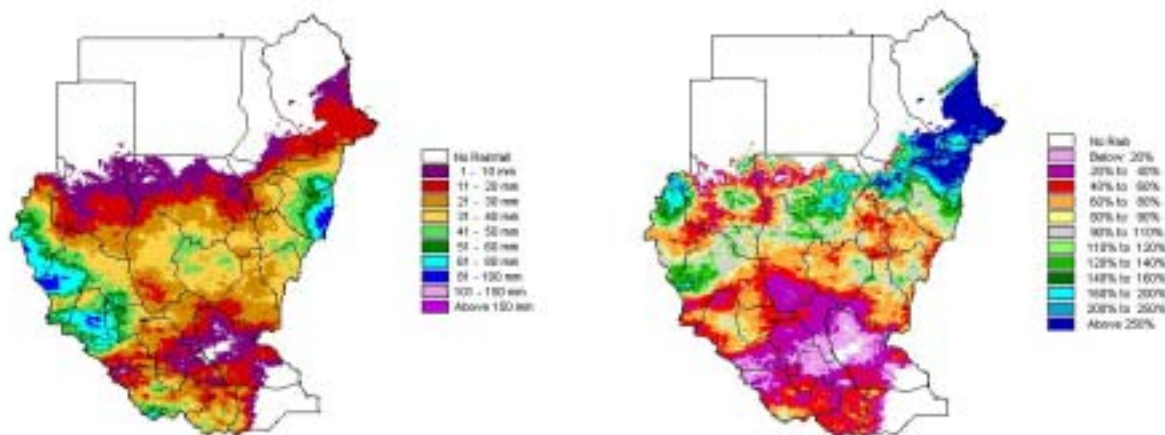


Fig 2a – Rainfall amounts (mm) 11-20 July 2004

Fig 2b – Same but in relative terms : as % of long term average

In this dekad, in spite of the northwards progress of the ITCZ, the rainfall amounts were generally low. Areas with heavier rainfall (over 60–80 mm) were found mostly along the eastern border of the country (Gedaref and Kassala States) with point values of 94.6mm reported at New Halfa. Other areas of heavier rainfall are in parts of West and South Darfur and West Bahr el Gazal.

In contrast, very low and no significant rainfall occurred in Jonglei, Unity and Warab states. It is the second consecutive dekad of mainly dry conditions in these areas.

In relative terms, Central Sudan registered slightly more than the average rainfall, in contrast with Southern Sudan where amounts were markedly below the average. Northeastern Sudan registered very much above average rainfall, though average amounts are usually very small.

Rainfall Analysis - Cumulative Amounts

Cumulative amounts are obtained by summing the dekadal estimates starting from Dekad 1 of March until present.

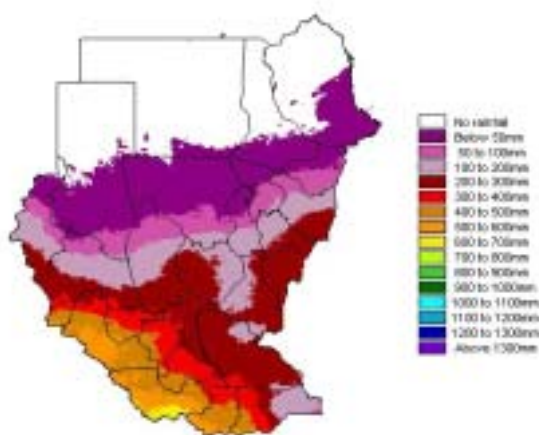


Fig 3a – Cumulative rainfall (Mar Dek1 – Current Dek)

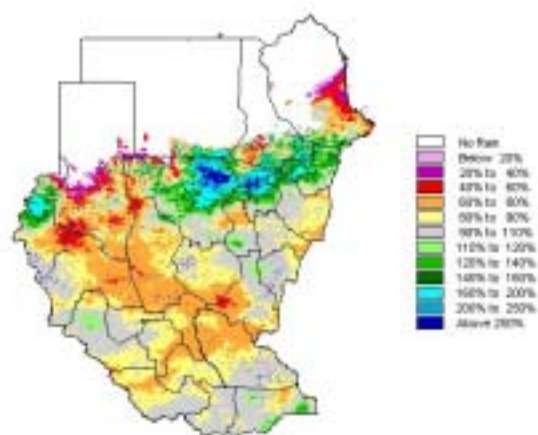


Fig 3b – Same but in relative terms : % of long term average

The cumulative rainfall amounts (Fig 3a) display the usual organisation in latitude bands (as the rainfall moves north following the ITCZ). Currently, values approach 600mm in southernmost Sudan and less than 50mm up to 17°N.

The situation relative to the average (Fig 3b) deteriorated from last dekad in many parts of Sudan especially in Jonglei, Lakes, Unity, Warab, Upper Nile, South and West Kordofan and Greater Darfur. It is noticeable a belt of below average conditions running from Darfur across to Jonglei.

In Central-North Sudan some unseasonal rains are responsible for the above average conditions; it is still early in the season for this to be of significance and the situation can be quickly reversed in the next dekads.

Vegetation Analysis

Vegetation information is based on the NDVI, a satellite index related to vegetation amount and vigour. NDVI data is sourced from the Africa Data Dissemination Service and processed at SMA.



Fig 4a – NDVI 11-20 July 2004. Darker shades for denser vegetation, lightest shade for soil. (Source : ADDS).

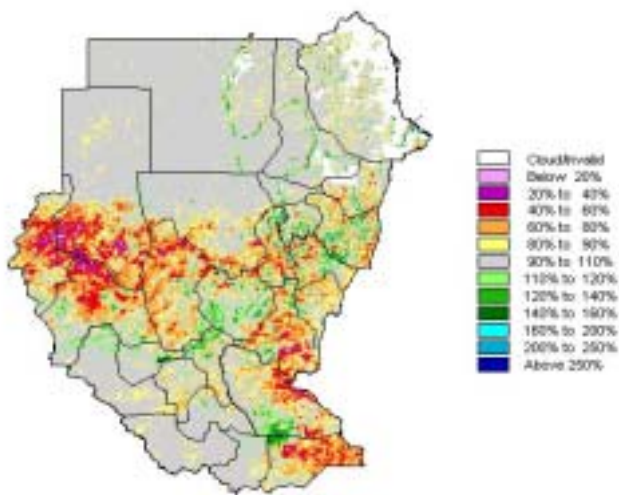


Fig 4b – Same in relative terms : % of long term average (ADDS)

The NDVI for this dekad (Fig 4a) continues the trend of vegetation advancing northwards following the progress of the rains. Currently, new season vegetation development is registered in the central states, up to the borders of Sennar, Gedaref, South and West Kordofan and West and South Darfur.

In Southern Sudan, vegetation conditions are mostly on average (Fig 4b) in broad accordance with the rainfall situation but declining vegetation conditions are noticeable in East Equatoria and Jonglei-Upper Nile borders.

In West Kordofan and Greater Darfur vegetation conditions are markedly below average. This reflects the same conditions in seasonal rainfall displayed in Fig 3b.

Typically, vegetation development starts in early July. The indications from the vegetation index and rainfall estimates imply that early season vegetation development is being delayed due to poor rains.

Acknowledgements

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